LSC Series

LSC Communication (ASCII)

Communication Manual MCY-LSCC1-V1.0-2301US

Thank you for purchasing an Autonics product.
This user manual contains information about the product and its proper use,
and should be kept in a place where it will be easy to access.

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Preface

Thank you for purchasing Autonics products.
Be sure to read and follow the **Safety Precautions** thoroughly before use.
This manual contains information about the product and how to use it properly, so keep it in a place where users can easily find it.

Manual Guide

- Use the product after fully reading the contents of the manual.
- The manual explains the product functions in detail and does not guarantee the contents other than the manual.
- Any or all of the manual may not be edited or copied without permission.
- The manual is not provided with the product.
- Download and use from our website (www.autonics.com).
- The contents of the manual are subject to change without prior notice according to the improvement of the product's performance, and upgrade notices are provided through our website.
- We put a lot of effort to make the contents of the manual a little easier and more accurate. Nevertheless, if you have any corrections or questions, please feel free to comment through our website.

Common Symbols in the Manual

Failure to follow instructions may result in serious injury or death.

Failure to follow instructions may result in injury or product damage.

Supplementary explanation of the function

Example of that function

Important information about the feature

1. Message Format

1.1. Packet Format

The packet consists of Start, Packet Size, Command Type, Command, Data, and End codes.
Separate each component with (,).

Component	Description
Start	Packet start code
Packet Size	Total packet size (The number of characters in the Ascii communication)
Command Type	Message type between Server and Client
Command	Kind of command
Data	Data
End	Packet end code

1.2. Data Size and Type of ASCII Communication Packet Configuration

	Start	Packet Size	Command Type	Command	Data	End
Data Size (byte)	1	4	3	n	n	1
Data Type	byte	String	String	String	String	byte

ASCII	<STX>0016,sWC,LSFmedian,1<ETX>
Hex	02 30 30 31 36 2C 73 57 43 2C 4C 53 46 6D 65 64 69 61 6E 2C 31 03

1.3. Kind of Command Type

ASCII	Hex	Description
<STX>	02	Packet start character
<ETX>	03	Packet end character
sMC	734D43	Sensor command (Sensor Method Command)
sMA	734D41	Sensor command response (Sensor Method Ack)
sRC	735243	Sensor read (Sensor Read Command)
sRA	735241	Sensor read response (Sensor Read Ack)
sWC	735743	Sensor write (Sensor Write Command)
sWA	735741	Sensor write response (Sensor Write Ack)
sCA	734341	Continuous data response (Sensor Continuous Ack)
sEA	734541	Event response (Sensor Event Ack)

Use `,` as the distinguishing character for each data in the ASCII packet.
The ASCII character `,` is represented by the Hex value `2C`.

1.4. Variable Format

Variable	Data size (byte)	Setting value range	Sign
UInt8_t	1	0 to 255	X
Int8_t	1	-128 to 127	O
UInt16_t	2	0 to 65,535	X
Int16_t	2	-32,768 to 32,767	O
UInt32_t	4	0 to 4,294,967,295	X
Int32_t	4	-2,147,483,648 to 2,147,483,647	O
String	Depends on string length	-	-

Make sure that the last character of the string variable does not end with 0.

2. Message Definition

Function	Command	Command Type	Description
Connect TCP/IP communication	FirstConnectDummySend	sEA	TCP/IP communication connect response
Login	SetAccessLevel	sMC	Login
	SetAccessLevel	sMA	Login response
Logout	Logout	sMC	Logout
	Logout	sMA	Logout response
Login error	LoginError	sWA	Response on receipt of login required command
Initialization	LSFactoryReset	sMC	Initialization
	LSFactoryReset	sMA	Initialization response
Import	LSLoadParameter	sMC	Import parameter saved in Flash into device internal memory
	LSLoadParameter	sMA	Import response
Input configuration (write, read)	LSDIConfig	sWC, sRC	Input setting
	LSDIConfig	sWA, sRA	Input setting response
Input 3 mode	LS3DIMode	sWC	Input 3 setting
	LS3DIMode	sWA	Input 3 setting response
Input 4 mode	LS4DIMode	sWC	Input 4 setting
	LS4DIMode	sWA	Input 4 setting response
Output configuration (write, read)	LSDOConfig	sWC, sRC	Output setting
	LSDOConfig	sWA, sRA	Output setting response
Output 4 mode (write, read)	LS4DOMode	sWC, sRC	Output 4 Sync output setting and confirm
	LS4DOMode	sWA, sRA	Output 4 Sync output setting and confirm response
Particle filter	LSFparticle	sWC	Particle filter setting
	LSFparticle	sWA	Particle filter setting response
Median filter	LSFmedian	sWC	Median filter setting
	LSFmedian	sWA	Median filter setting response

Function	Command	Command Type	Description
Average filter	LSFaverage	sWC	Average filter setting
	LSFaverage	sWA	Average filter setting response
Filter setting value confirm (write, read)	LSFConfig	sWC, sRC	Filter setting value confirm
	LSFConfig	sWA, sRA	Filter setting value confirm response
Teaching configuration (write, read)	LSTeachingConfig	sWC, sRC	Teaching setting
	LSTeachingConfig	sWA, sRA	Teaching setting response
Teaching time (write, read)	LSTeachingTime	sWC, sRC	Teaching time setting
	LSTeachingTime	sWA, sRA	Teaching time setting response
Teaching start command	LSTeachingStart	sMC	Teaching start
	LSTeachingStart	sMA	Teaching start response
Teaching start notice	LSTeachingStart	sEA	Teaching start event response
Teaching end notice	LSTeachingEnd	sEA	Teaching end event response
Scan data configuration (write, read)	LSScanDataConfig	sWC, sRC	Scan data configuration setting
	LSScanDataConfig	sWA, sRA	Scan data configuration setting response
Device configuration status read	SensorScanInfo	sRC	Device configuration read
	SensorScanInfo	sRA	Device configuration read response
Scan data transmission start command	SensorStart	sMC	Scan data transmission start
	SensorStart	sMA	Scan data transmission start command response
Scan data transmission stop command	SensorStop	sMC	Scan data transmission stop
	SensorStop	sMA	Scan data transmission stop command response
Scan data transmission start notice	LSScanStart	sEA	Scan data transmission start event response by external input (IN3)
Scan data transmission stop notice	LSScanStop	sEA	Scan data transmission stop event response by external input (IN3)

Function	Command	Command Type	Description
Measurement mode scan data	ScanData	sCA	Scan data receipt in the measurement mode
Bluetooth SSID (write, read)	LSBluetoothConfig	sWC, sRC	Bluetooth setting
	LSBluetoothConfig	sWA, sRA	Bluetooth setting response
Bluetooth activation (write, read)	LSBluetooth	sWC, sRC	Bluetooth activation setting
	LSBluetooth	sWA, sRA	Bluetooth activation setting response
Password change	AccessLvPassword	sWC	Password change
	AccessLvPassword	sWA	Password change response
Parameter save	LSStoreParameter	sMC	Parameter save setting in Flash
	LSStoreParameter	sMA	Parameter save setting response in Flash
Error	SyntaxError	sEA	Event response to communication message error

3. Message Data Definition

3.1. Connect

3.1.1. Connect TCP/IP Communication

Device » **PC**

Item	ASCII
Message	sEA FirstConnectDummySend

ASCII	<STX>0020,sEA,FirstConnectDummySend<ETX>
Hex	02 30 30 32 30 2C 73 45 41 2C 46 69 72 73 74 43 6F 6E 6E 65 63 74 44 75 6D 6D 79 53 65 6E 64 03

3.2. Login / Logout

3.2.1. Login

PC » Device

Item	ASCII
Message	sMC SetAccessLevel
Password (String)	0000 (default)

ASCII	<STX>001E,sMC,SetAccessLevel,0000<ETX>
Hex	02 30 30 31 45 2C 73 4D 43 2C 53 65 74 41 63 63 65 73 73 4C 65 76 65 6C 2C 30 30 30 30 03

Device » PC

Item	ASCII
Message	sMA SetAccessLevel
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001B,sMA,SetAccessLevel,1<ETX>
Hex	02 30 30 31 42 2C 73 4D 41 2C 53 65 74 41 63 63 65 73 73 4C 65 76 65 6C 2C 31 03

3.2.2. Logout

PC » Device

Item	ASCII
Message	sMC Logout

ASCII	<STX>0011,sMC,Logout<ETX>
Hex	02 30 30 31 31 2C 73 4D 43 2C 4C 6F 67 6F 75 74 03

Device » PC

Item	ASCII
Message	sMA Logout
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0013,sMA,Logout,1<ETX>
Hex	02 30 30 31 33 2C 73 4D 41 2C 4C 6F 67 6F 75 74 2C 31 03

3.2.3. Login Error

Device » PC

- When the communication command data which is only for login is received while logout status,

Item	ASCII
Message	sWA LoginError

ASCII	<STX>0015,sWA,LoginError<ETX>
Hex	02 30 30 31 35 2C 73 57 41 2C 4C 6F 67 69 6E 45 72 72 6F 72 03

3.3. Device

3.3.1. Initialization

PC » Device

Item	ASCII
Message	sMC LSFactoryReset

ASCII	<STX>0019,sMC,LSFactoryReset<ETX>
Hex	02 30 30 31 39 2C 73 4D 43 2C 4C 53 46 61 63 74 6F 72 79 52 65 73 65 74 03

Device » PC

Item	ASCII
Message	sMA LSFactoryReset
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001C,sMA,LSFactoryReset,1<ETX>
Hex	02 30 30 31 43 2C 73 4D 41 2C 4C 53 46 61 63 74 6F 72 79 52 65 73 65 74 20 2C 31 03

3.3.2. Import

PC » Device

Item	ASCII
Message	sMC LSLoadParameter

ASCII	<STX>001A,sMC,LSLoadParameter<ETX>
Hex	02 30 30 31 41 2C 73 4D 43 2C 4C 53 4C 6F 61 64 50 61 72 61 6D 65 74 65 72 03

Device » PC

Item	ASCII
Message	sMA LSLoadParameter
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001D,sMA,LSLoadParameter,1<ETX>
Hex	02 30 30 31 44 2C 73 4D 41 2C 4C 53 4C 6F 61 64 50 61 72 61 6D 65 74 65 72 20 2C 31 03

3.4. Input

3.4.1. Input Configuration (Write)

PC » Device

Item	ASCII
Message	sWC LSDIConfig
Input number (String)	IN1,IN2,IN3,IN4
Trigger (UInt8_t)	0: Edge 1: Level
Logic level (UInt8_t)	1: Active High 0: Active Low
Debouncing [msec] (UInt16_t)	1 to 5000 (ms)

ASCII	<STX>002C,sWC,LSDIConfig,IN1,0,0,100,IN2,0,1,10<ETX>
Hex	02 30 30 32 43 2C 73 57 43 2C 4C 53 44 49 43 6F 6E 66 69 67 2C 49 4E 31 2C 30 2C 30 2C 31 30 30 2C 49 4E 32 2C 30 2C 31 2C 31 30 03

Device » PC

Item	ASCII
Message	sWA LSDIConfig
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0017,sWA,LSDIConfig,1<ETX>
Hex	02 30 30 31 37 2C 73 57 41 2C 4C 53 44 49 43 6F 6E 66 69 67 2C 31 03

3.4.2. Input Configuration (Read)

PC » Device

Item	ASCII
Message	sRC LSDIConfig

ASCII	<STX>0015,sRC,LSDIConfig<ETX>
Hex	02 30 30 31 35 2C 73 52 43 2C 4C 53 44 49 43 6F 6E 66 69 67 03

Device » PC

Item	ASCII
Message	sRA LSDIConfig
Input number (String)	IN1,IN2,IN3,IN4
Trigger (UInt8_t)	0: Edge 1: Level
Logic level (UInt8_t)	1: Active High 0: Active Low
Debouncing [msec] (UInt16_t)	1 to 5000 (ms)
IN3 mode (UInt8_t)	0: Selecting field set 1: START / STOP signal for scan output
IN4 mode (UInt8_t)	0: Selecting field set 1: Teaching

ASCII	<STX>0045,sRA,LSDIConfig,IN1,1,1,10,IN2,1,1,10,IN3,1,1,10,IN4, 1,1,10,0,1<ETX>
Hex	02 30 30 34 35 2C 73 52 41 2C 4C 53 44 49 43 6F 6E 66 69 67 2C 49 4E 31 2C 31 2C 31 2C 31 30 2C 49 4E 32 2C 31 2C 31 2C 31 30 2C 49 4E 33 2C 31 2C 31 2C 31 30 2C 49 4E 34 2C 31 2C 31 2C 31 30 2C 30 2C 31 03

3.4.3. Input 3 Mode

PC » Device

Item	ASCII
Message	sWC LS3DIMode
Mode (UInt8_t)	0: Selecting field set 1: START / STOP signal for scan output

ASCII	<STX>0016,sWC,LS3DIMode,0<ETX>
Hex	02 30 30 31 36 2C 73 57 43 2C 4C 53 33 44 49 4D 6F 64 65 2C 30 03

Device » PC

Item	ASCII
Message	sWA LS3DIMode
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0016,sWA,LS3DIMode,1<ETX>
Hex	02 30 30 31 36 2C 73 57 41 2C 4C 53 33 44 49 4D 6F 64 65 2C 31 03

3.4.4. Input 4 Mode

PC » Device

Item	ASCII
Message	sWC LS4DIMode
Mode (UInt8_t)	0: Selecting field set 1: Teaching

ASCII	<STX>0016,sWC,LS4DIMode,0<ETX>
Hex	02 30 30 31 36 2C 73 57 43 2C 4C 53 34 44 49 4D 6F 64 65 2C 30 03

Device » PC

Item	ASCII
Message	sWA LS4DIMode
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0016,sWA,LS4DIMode,1<ETX>
Hex	02 30 30 31 36 2C 73 57 41 2C 4C 53 34 44 49 4D 6F 64 65 2C 31 03

3.5. Output

3.5.1. Output Configuration (Write)

PC » Device

Item	ASCII
Message	sWC LSDOConfig
Output number (String)	OUT1,OUT2,OUT3,OUT4
Type (UInt8_t)	1: Normally Open 0: Normally Closed
Polarity (UInt8_t)	0: NPN 1: PNP
Restart time (UInt16_t)	500 to 60000 (ms)

ASCII	<STX>002A,sWC,LSDOConfig,OUT1,1,100,OUT2,0,10<ETX>
Hex	02 30 30 32 41 2C 73 57 43 2C 4C 53 44 4F 43 6F 6E 66 69 67 2C 4F 55 54 31 2C 31 2C 31 30 30 2C 4F 55 54 32 2C 30 2C 31 30 03

Device » PC

Item	ASCII
Message	sWA LSDOConfig
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0017,sWA,LSDOConfig,1<ETX>
Hex	02 30 30 31 37 2C 73 57 41 2C 4C 53 44 4F 43 6F 6E 66 69 67 2C 31 03

3.5.2. Output Configuration (Read)

PC » Device

Item	ASCII
Message	sRC LSDOConfig

ASCII	<STX>0015,sRC,LSDOConfig<ETX>
Hex	02 30 30 31 35 2C 73 52 43 2C 4C 53 44 4F 43 6F 6E 66 69 67 03

Device » PC

Item	ASCII
Message	sRA LSDOConfig
Output Number (String)	OUT1,OUT2,OUT3,OUT4
Type (UInt8_t)	1: Normally Open 0: Normally Closed
Polarity (UInt8_t)	0: NPN 1: PNP
Restart time (UInt16_t)	500 to 60000 (ms)
Out4 mode (UInt8_t)	0: Ready / Error output fixed 1: Sync pulse output at 90 °

ASCII	<STX>0047,sRA,LSDOConfig,OUT1,1,0,100,OUT2,0,0,10,OUT3,1,0,100,OUT4,0,0,10<ETX>
Hex	02 30 30 34 37 2C 73 52 41 2C 4C 53 44 4F 43 6F 6E 66 69 67 2C 4F 55 54 31 2C 31 2C 30 2C 31 30 30 2C 4F 55 54 32 2C 30 2C 30 2C 31 30 2C 4F 55 54 33 2C 31 2C 30 2C 31 30 30 2C 4F 55 54 34 2C 30 2C 30 2C 31 30 03

3.5.3. Output 4 Mode (Write)

PC » Device

Item	ASCII
Message	sWC LS4DOMode
Mode (UInt8_t)	0: Ready / Error output fixed 1: Sync pulse output at 90 °

ASCII	<STX>0016,sWC,LS4DOMode,1<ETX>
Hex	02 30 30 31 36 2C 73 57 43 2C 4C 53 34 44 4F 4D 6F 64 65 2C 31 03

Device » PC

Item	ASCII
Message	sWA LS4DOMode
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0016,sWA,LS4DOMode,1<ETX>
Hex	02 30 30 31 36 2C 73 57 41 2C 4C 53 34 44 4F 4D 6F 64 65 2C 31 03

3.5.4. Output 4 Mode (Read)

PC » Device

Item	ASCII
Message	sRC LS4DOMode

ASCII	<STX>0014,sRC,LS4DOMode<ETX>
Hex	02 30 30 31 34 2C 73 52 43 2C 4C 53 34 44 4F 4D 6F 64 65 03

Device » PC

Item	ASCII
Message	sRA LS4DOMode
Info (UInt8_t)	0: Ready / Error output fixed 1: Sync pulse output at 90 °

ASCII	<STX>0016,sRA,LS4DOMode,1<ETX>
Hex	02 30 30 31 36 2C 73 52 41 2C 4C 53 34 44 4F 4D 6F 64 65 2C 31 03

3.6. Filter

3.6.1. Particle Filter

PC » **Device**

Item	ASCII
Message	sWC LSFparticle
Status (UInt8_t)	1: Activated 0: Inactivated

ASCII	<STX>0018,sWC,LSFparticle,1<ETX>
Hex	02 30 30 31 38 2C 73 57 43 2C 4C 53 46 70 61 72 74 69 63 6C 65 2C 31 03

Device » **PC**

Item	ASCII
Message	sWA LSFparticle
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0018,sWA,LSFparticle,1<ETX>
Hex	02 30 30 31 38 2C 73 57 43 2C 4C 53 46 70 61 72 74 69 63 6C 65 2C 31 03

3.6.2. Median Filter

PC » Device

Item	ASCII
Message	sWC LSFmedian
Status (UInt8_t)	1: Activated 0: Inactivated

ASCII	<STX>0016,sWC,LSFmedian,1<ETX>
Hex	02 30 30 31 36 2C 73 57 43 2C 4C 53 46 6D 65 64 69 61 6E 2C 31 03

Device » PC

Item	ASCII
Message	sWA LSFmedian
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0016,sWA,LSFmedian,1<ETX>
Hex	02 30 30 31 36 2C 73 57 41 2C 4C 53 46 6D 65 64 69 61 6E 2C 31 03

3.6.3. Average Filter

PC » Device

Item	ASCII
Message	sWC LSFaverage
No. of scan (UInt8_t)	2 to 4: Activated 0: Inactivated

ASCII	<STX>0017,sWC,LSFaverage,4<ETX>
Hex	02 30 30 31 37 2C 73 57 43 2C 4C 53 46 61 76 65 72 61 67 65 2C 34 03

Device » PC

Item	ASCII
Message	sWA LSFaverage
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0017,sWA,LSFaverage,1<ETX>
Hex	02 30 30 31 37 2C 73 57 41 2C 4C 53 46 61 76 65 72 61 67 65 2C 31 03

3.6.4. Filter Setting Value Confirm (Write)

PC » Device

Item	ASCII
Message	sWC LSFConfig
Particle filter activation (UInt8_t)	1: Activated 0: Inactivated
Median filter activation (UInt8_t)	1: Activated 0: Inactivated
The number of average filter scan (UInt8_t)	2 to 4: Activated 0: Inactivated

ASCII	<STX>001A,sWC,LSFConfig,1,0,2<ETX>
Hex	02 30 30 31 41 2C 73 57 43 2C 4C 53 46 43 6F 6E 66 69 67 2C 31 2C 30 2C 32 03

Device » PC

Item	ASCII
Message	sWA LSFConfig
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0016,sWA,LSFConfig,1<ETX>
Hex	02 30 30 31 36 2C 73 57 41 2C 4C 53 46 43 6F 6E 66 69 67 2C 31 03

3.6.5. Filter Setting Value Confirm (Read)

PC » Device

Item	ASCII
Message	sRC LSFConfig

ASCII	<STX>0014,sRC,LSFConfig<ETX>
Hex	02 30 30 31 34 2C 73 52 43 2C 4C 53 46 43 6F 6E 66 69 67 03

Device » PC

Item	ASCII
Message	sRA LSFConfig
Particle filter activation (UInt8_t)	1: Activated 0: Inactivated
Median filter activation (UInt8_t)	1: Activated 0: Inactivated
The number of average filter scan (UInt8_t)	2 to 4: Activated 0: Inactivated

ASCII	<STX>003B,sRA,LSFConfig,LSFparticle,1,LSFmedian,0,LSFaverage,2<ETX>
Hex	02 30 30 33 42 2C 73 52 41 2C 4C 53 46 43 6F 6E 66 69 67 2C 4C 53 46 70 61 72 74 69 63 6C 65 2C 31 2C 4C 53 46 6D 65 64 69 61 6E 2C 30 2C 4C 53 46 61 76 65 72 61 67 65 2C 32 03

3.7. Teaching

3.7.1. Teaching Configuration (Write)

PC » **Device**

Item	ASCII
Message	sWC LSTeachingConfig
Teaching save field set (UInt8_t)	1 to 16
Teaching save subfield (UInt8_t)	1 to 3
Teaching button activation (UInt8_t)	1: Activated 0: Inactivated

ASCII	<STX>0021,sWC,LSTeachingConfig,1,1,1<ETX>
Hex	02 30 30 32 31 2C 73 57 43 2C 4C 53 54 65 61 63 68 69 6E 67 43 6F 6E 66 69 67 2C 31 2C 31 2C 31 03

Device » **PC**

Item	ASCII
Message	sWA LSTeachingConfig
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001E,sWA,LSCTeachingConfig,1<ETX>
Hex	02 30 30 31 45 2C 73 57 41 2C 4C 53 43 54 65 61 63 68 69 6E 67 43 6F 6E 66 69 67 2C 31 03

3.7.2. Teaching Configuration (Read)

PC » Device

Item	ASCII
Message	sRC LSTeachingConfig

ASCII	<STX>001C,sRC,LSCTeachingConfig<ETX>
Hex	02 30 30 31 43 2C 73 52 43 2C 4C 53 43 54 65 61 63 68 69 6E 67 43 6F 6E 66 69 67 03

Device » PC

Item	ASCII
Message	sRA LSCTeachingConfig
Teaching save field set (UInt8_t)	1 to 16
Teaching save subfield (UInt8_t)	1 to 3
Teaching button activation (UInt8_t)	1: Activated 0: Inactivated

ASCII	<STX>0021,sRA,LSTeachingConfig,1,1,1<ETX>
Hex	02 30 30 32 31 2C 73 52 41 2C 4C 53 54 65 61 63 68 69 6E 67 43 6F 6E 66 69 67 2C 31 2C 31 2C 31 03

3.7.3. Teaching Time (Write)

PC » Device

Item	ASCII
Message	sWC LSTeachingTime
Preparation time (UInt8_t)	0: 5 sec 1: 10 sec 2: 15 sec
Progress time (UInt8_t)	0: 10 sec 1: 20 sec 2: 30 sec 3: 40 sec 4: 50 sec 5: 60 sec

ASCII	<STX>001D,sWC,LSTeachingTime,1,5<ETX>
Hex	02 30 30 31 44 2C 73 57 43 2C 4C 53 54 65 61 63 68 69 6E 67 54 69 6D 65 2C 31 2C 35 03

Device » PC

Item	ASCII
Message	sWA LSTeachingTime
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001B,sWA,LSTeachingTime,1<ETX>
Hex	02 30 30 31 42 2C 73 57 41 2C 4C 53 54 65 61 63 68 69 6E 67 54 69 6D 65 2C 31 03

3.7.4. Teaching Time (Read)

PC » **Device**

Item	ASCII
Message	sRC LSTeachingTime

ASCII	<STX>0019,sRC,LSTeachingTime<ETX>
Hex	02 30 30 31 39 2C 73 52 43 2C 4C 53 54 65 61 63 68 69 6E 67 54 69 6D 65 03

Device » **PC**

Item	ASCII
Message	sRA LSTeachingTime
Preparation time (UInt8_t)	0: 5 sec 1: 10 sec 2: 15 sec
Progress time (UInt8_t)	0: 10 sec 1: 20 sec 2: 30 sec 3: 40 sec 4: 50 sec 5: 60 sec

ASCII	<STX>001D,sRA,LSTeachingTime,1,5<ETX>
Hex	02 30 30 31 44 2C 73 52 41 2C 4C 53 54 65 61 63 68 69 6E 67 54 69 6D 65 2C 31 2C 35 03

3.7.5. Teaching Start Command

PC » Device

Item	ASCII
Message	sMC LSTeachingStart
Teaching save field set (UInt8_t)	1 to 16
Teaching save subfield (UInt8_t)	1 to 3

ASCII	<STX>001E,sMC,LSTeachingStart,1,1<ETX>
Hex	02 30 30 31 45 2C 73 4D 43 2C 4C 53 54 65 61 63 68 69 6E 67 53 74 61 72 74 2C 31 2C 31 03

Device » PC

Item	ASCII
Message	sMA LSTeachingStart
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001C,sMA,LSTeachingStart,1<ETX>
Hex	02 30 30 31 43 2C 73 4D 41 2C 4C 53 54 65 61 63 68 69 6E 67 53 74 61 72 74 2C 31 03

3.7.6. Teaching Start Notice

Device » **PC**

Item	ASCII
Message	sEA LSTeachingStart

ASCII	<STX>001A,sEA,LSTeachingStart<ETX>
Hex	02 30 30 31 41 2C 73 45 41 2C 4C 53 54 65 61 63 68 69 6E 67 53 74 61 72 74 03

3.7.7. Teaching End Notice

Device » **PC**

Item	ASCII
Message	sEA LSTeachingEnd
Info (UInt16_t)	0: Success ErrorCode: Error

ASCII	<STX>001A,sEA,LSTeachingEnd,0<ETX>
Hex	02 30 30 31 41 2C 73 45 41 2C 4C 53 54 65 61 63 68 69 6E 67 45 6E 64 2C 30 03

3.8. Interface

3.8.1. Scan Data Configuration (Write)

PC » Device

Item	ASCII
Message	sWC LSScanDataConfig
Scan start angle (Int32_t)	FFF92230 (-0d450000): -45 °
Scan end angle (Int32_t)	225510 (+0d2250000): 225 °
RSSI data transmission activation (UInt8_t)	1: Activated 0: Inactivated
Scan data cycle (UInt16_t)	1 to 60000 (× 67 ms)
Field set output activation	1: Activated 0: Inactivated

ASCII	<STX>0031,sWC,LSScanDataConfig,FFF92230,225510,1,1,1<ETX>
Hex	02 30 30 33 31 2C 73 57 43 2C 4C 53 53 63 61 6E 44 61 74 61 43 6F 6E 66 69 67 2C 46 46 46 39 32 32 33 30 2C 32 32 35 35 31 30 2C 31 2C 31 2C 31 03

Device » PC

Item	ASCII
Message	sWA LSScanDataConfig
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001A,sWA,LSOutputRange,1<ETX>
Hex	02 30 30 31 41 2C 73 57 41 2C 4C 53 4F 75 74 70 75 74 52 61 6E 67 65 2C 31 03

3.8.2. Scan Data Configuration (Read)

PC » **Device**

Item	ASCII
Message	sRC LSScanDataConfig

ASCII	<STX>001B,sRC,LSScanDataConfig<ETX>
Hex	02 30 30 31 42 2C 73 52 43 2C 4C 53 53 63 61 6E 44 61 74 61 43 6F 6E 66 69 67 03

Device » **PC**

Item	ASCII
Message	sRA LSScanDataConfig
Scan start angle (Int32_t)	FFF92230 (-0d450000): -45 °
Scan end angle (Int32_t)	225510 (+0d2250000): 225 °
RSSI data transmission activation (UInt8_t)	1: Activated 0: Inactivated
Scan data cycle (UInt16_t)	1 to 60000 (× 67 ms)
Field set output activation	1: Activated 0: Inactivated

ASCII	<STX>0031,sRA,LSScanDataConfig,FFF92230,225510,1,1,1<ETX>
Hex	02 30 30 33 31 2C 73 52 41 2C 4C 53 53 63 61 6E 44 61 74 61 43 6F 6E 66 69 67 2C 46 46 46 39 32 32 33 30 2C 32 32 35 35 31 30 2C 31 2C 31 2C 31 03

3.8.3. Device Configuration Status Read

PC » Device

Item	ASCII
Message	sRC SensorScanInfo

ASCII	<STX>0019,sRC,SensorScanInfo<ETX>
Hex	02 30 30 31 39 2C 73 52 43 2C 53 65 6E 73 6F 72 53 63 61 6E 49 6E 66 6F 03

Device » PC

Item	ASCII
Message	sRA SensorScanInfo
Sensor (String)	LSC-270
Scan frequency [1/100] (UInt16_t)	5DC (0d1500): LSC (15 Hz)
Angular resolution [1/10000 °] (UInt16_t)	D05 (0d3333): LSC (0.333 °)
Scan output start angle [1/10000 °] (Int_32)	FFF92230 (-0d450000) to 225510 (+0d2250000): -45 ° to 225 °
Scan output end angle [1/10000 °] (Int_32)	FFF92230 (-0d450000) to 225510 (+0d2250000): -45 ° to 225 °
F/W version (UInt16_t)	0000 to FFFF
H/W version (UInt16_t)	0000 to FFFF
Serial number (UInt32_t)	00000000 to FFFFFFFF
MAC Address (UInt16_t)	0000 FF FF FF FF FF FF (use low 6 BYTE)
Login Status (UInt8_t)	1: Login 0: Logout
Model (String) (max. character number: 32)	LSC-C25CT3-BET
Bluetooth use (UInt8_t)	1: Bluetooth ON 0: Bluetooth OFF

ASCII	<STX>0035,sRA,SensorScanInfo,LSC-270,0,9C4,9C4,EE6C,57E4<ETX>
Hex	02 30 30 33 35 2C 73 52 41 2C 53 65 6E 73 6F 72 53 63 61 6E 49 6E 66 6F 2C 4C 53 43 2D 32 37 30 2C 30 2C 39 43 34 2C 39 43 34 2C 45 45 36 43 2C 35 37 45 34 03

3.8.4. Scan Data Transmission Start Command

PC » Device

Item	ASCII
Message	sMC SensorStart

ASCII	<STX>0016,sMC,SensorStart<ETX>
Hex	02 30 30 31 36 2C 73 4D 43 2C 53 65 6E 73 6F 72 53 74 61 72 74 03

Device » PC

Item	ASCII
Message	sMA SensorStart

ASCII	<STX>0016,sMA,SensorStart<ETX>
Hex	02 30 30 31 36 2C 73 4D 41 2C 53 65 6E 73 6F 72 53 74 61 72 74 03

3.8.5. Scan Data Transmission Stop Command

PC » Device

Item	ASCII
Message	sMC SensorStop

ASCII	<STX>0015,sMC,SensorStop<ETX>
Hex	02 30 30 31 35 2C 73 4D 43 2C 53 65 6E 73 6F 72 53 74 6F 70 03

Device » PC

Item	ASCII
Message	sMA SensorStop

ASCII	<STX>0015,sMA,SensorStop<ETX>
Hex	02 30 30 31 35 2C 73 4D 41 2C 53 65 6E 73 6F 72 53 74 6F 70 03

3.8.6. Scan Data Transmission Start Notice

Device » **PC**

Item	ASCII
Message	sEA LSScanStart

ASCII	<STX>0016,sEA,LSScanStart<ETX>
Hex	02 30 30 31 36 2C 73 45 41 2C 4C 53 53 63 61 6E 53 74 61 72 74 03

3.8.7. Scan Data Transmission Stop Notice

Device » **PC**

Item	ASCII
Message	sEA LSScanStop

ASCII	<STX>0015,sEA,LSScanStop<ETX>
Hex	02 30 30 31 35 2C 73 45 41 2C 4C 53 53 63 61 6E 53 74 6F 70 03

3.8.8. Measurement Mode Scan Data

Device » PC

Item	ASCII
Message	sCA ScanData
Version (UInt16_t)	0000 to FFFF
Sensor (String)	LSC-270
Error display (UInt32_t)	0 to FFFFFFFF
LED status display (UInt8_t)	0000: 00 (POWER) + 00 (ERROR) (00: OFF, 01: flashing, 11: ON)
Scan number (UInt16_t)	0 to FFFF
Input status (UInt8_t)	0b'0000 (All 4 input Low) to 0b'1111 (All 4 input High): 0 to F
Output status (UInt8_t)	0b'000 (All 3 input Low) to 0b'111 (All 3 input High): 0 to 7
Scan frequency [1/100 Hz] (UInt16_t)	5DC (0d1500): LSC (15 Hz)
Motor frequency [RPM] (UInt16_t)	0 to FFFF
Scan start angle [1/10000 °] (Int_32)	FFF92230 (-0d450000) to 225510 (+0d2250000): -45 ° to 225 °
Angular resolution [1/10000 °] (UInt16_t)	D05 (0d3333) to FFFF: LSC (≥ 0.33 °)
The number of 1 Scan measurement data (UInt16_t)	0000 to FFFF
Activation field set	0 to F: 0 to 16
Distance Info / RSSI output (UInt8_t)	DIST1: Laser reception distance data RSSI1: Laser reception size data
Data_1 to Data_n (UInt16_t)	0000 to FFFF (LSC up to 811)

ASCII	<STX>xxxx,sCA,ScanData,1,LSC-270,1,13,0,0,9C4,5DC,DIST1,EE6C,9C4,439,⋯(total 811 data),RSSI1,EE6C,9C4,439,⋯(total 811 data)<ETX>
Hex	02 XX XX XX XX 2C 73 43 41 2C 53 63 61 6E 44 61 74 61 2C 31 2C 4C 53 43 2D 32 37 30 2C 31 2C 31 33 2C 30 2C 30 2C 39 43 34 2C 35 44 43 2C 44 49 53 54 31 2C 45 45 36 43 2C 39 43 34 2C 34 33 39 ⋯(total 811 data) 2C 52 53 53 49 31 2C 45 45 36 43 2C 39 43 34 2C 34 33 39 2C ⋯(total 811 data) 03

3.9. Device Setting (Bluetooth)

3.9.1. Bluetooth SSID (Write)

PC » Device

Item	ASCII
Message	sWC LSBluetoothConfig
SSID (String)	ABCD (up to 12 English characters with letter(a to z), and numbers)

ASCII	<STX>0021,sWC,LSBluetoothConfig,ABCD<ETX>
Hex	02 30 30 32 31 2C 73 57 43 2C 4C 53 42 6C 75 65 74 6F 6F 74 68 43 6F 6E 66 69 67 2C 41 42 43 44 03

Device » PC

Item	ASCII
Message	sWA LSBluetoothConfig
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001E,sWA,LSBluetoothConfig,1<ETX>
Hex	02 30 30 31 45 2C 73 57 41 2C 4C 53 42 6C 75 65 74 6F 6F 74 68 43 6F 6E 66 69 67 2C 31 03

3.9.2. Bluetooth SSID (Read)

PC » Device

Item	ASCII
Message	sRC LSBluetoothConfig

ASCII	<STX>001C,sRC,LSBluetoothConfig<ETX>
Hex	02 30 30 31 43 2C 73 52 43 2C 4C 53 42 6C 75 65 74 6F 6F 74 68 43 6F 6E 66 69 67 03

Device » PC

Item	ASCII
Message	sRA LSBluetoothConfig
SSID (String)	ABCD (up to 12 English characters with letter(a to z), and numbers)

ASCII	<STX>0021,sRA,LSBluetoothConfig,ABCD<ETX>
Hex	02 30 30 32 31 2C 73 52 41 2C 4C 53 42 6C 75 65 74 6F 6F 74 68 43 6F 6E 66 69 67 2C 41 42 43 44 03

3.9.3. Bluetooth Activation (Write)

PC » Device

Item	ASCII
Message	sWC LSBluetooth
Status (UInt8_t)	1: Activated 0: Inactivated

ASCII	<STX>0018,sWC,LSBluetooth,1<ETX>
Hex	02 30 30 31 38 2C 73 57 43 2C 4C 53 42 6C 75 65 74 6F 6F 74 68 2C 31 03

Device » PC

Item	ASCII
Message	sWA LSBluetooth
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>0018,sWA,LSBluetooth,1<ETX>
Hex	02 30 30 31 38 2C 73 57 41 2C 4C 53 42 6C 75 65 74 6F 6F 74 68 2C 31 03

3.9.4. Bluetooth Activation (Read)

PC » Device

Item	ASCII
Message	sRC LSBluetooth

ASCII	<STX>0016,sRC,LSBluetooth<ETX>
Hex	02 30 30 31 36 2C 73 52 43 2C 4C 53 42 6C 75 65 74 6F 6F 74 68 03

Device » PC

Item	ASCII
Message	sRA LSBluetooth
Info (UInt8_t)	1: Activated 0: Inactivated

ASCII	<STX>0018,sRA,LSBluetooth,1<ETX>
Hex	02 30 30 31 38 2C 73 52 41 2C 4C 53 42 6C 75 65 74 6F 6F 74 68 2C 31 03

3.10. Device Setting (Password)

3.10.1. Password Change

PC » Device

Item	ASCII
Message	sWC AccessLvPassword
Password (String)	0000 (default)
New password (String)	Arbitrary string • The password can consist of English upper/lower case letters and numbers. • Depending on the firmware version, the number of digits available for password setting is different. It can be set within 1 to 16 characters in versions below 1.69, and within 4 to 16 characters in later versions.

ASCII	<STX>0029,sWC,AccessLvPassword,client,client<ETX>
Hex	02 30 30 32 39 2C 73 57 43 2C 41 63 63 65 73 73 4C 76 50 61 73 73 77 6F 72 64 2C 63 6C 69 65 6E 74 2C 63 6C 69 65 6E 74 03

Device » PC

Item	ASCII
Message	sWA AccessLvPassword
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001D,sWA,AccessLvPassword,1<ETX>
Hex	02 30 30 31 44 2C 73 57 41 2C 41 63 63 65 73 73 4C 76 50 61 73 73 77 6F 72 64 2C 31 03

3.11. Parameter Save

3.11.1. Save in Flash

PC » **Device**

Item	ASCII
Message	sMC LSStoreParameter

ASCII	<STX>001B,sMC,LSStoreParameter<ETX>
Hex	02 30 30 31 42 2C 73 4D 43 2C 4C 53 53 74 6F 72 65 50 61 72 61 6D 65 74 65 72 03

Device » **PC**

Item	ASCII
Message	sMA LStoreParameter
Info (UInt8_t)	0: Error 1: Success

ASCII	<STX>001D,sMA,LSStoreParameter,1<ETX>
Hex	02 30 30 31 44 2C 73 4D 41 2C 4C 53 53 74 6F 72 65 50 61 72 61 6D 65 74 65 72 2C 31 03

3.12. Error

3.12.1. Communication Packet Grammar Error

Device » **PC**

Item	ASCII
Message	sEA SyntaxError

ASCII	<STX>001B,sEA,SyntaxError,sRc<ETX>
Hex	02 30 30 31 42 2C 73 45 41 2C 20 53 79 6E 74 61 78 45 72 72 6F 72 2C 73 52 63 03

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Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.

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